

Serial No. 09/990,771

In the claims:

1. (currently amended) An apparatus for driving a primary array of lasers, the apparatus comprising:
  - a laser current controller for providing a modulation signal and a bias signal;
  - a plurality of high-speed current drivers coupled to said laser current controller that accept the modulation signal and the bias signal and utilize said modulation signal and said bias signal to produce a plurality of high-speed laser drive signals to drive said primary array of lasers; and
  - a disable input in said laser current controller that selectively disables power to at least one high-speed current driver when the high-speed current driver is not in use; and
  - a secondary feedback laser coupled to said high-speed current drivers wherein said secondary laser is modulated by a signal of substantially lower frequency than said high-speed frequency of the primary array of lasers.
2. (original) The apparatus of claim 1 wherein the apparatus is integrated on an integrated circuit.
3. (currently amended) The apparatus of claim 2 wherein said further comprising an integrated array of lasers is also integrated onto said integrated circuit and coupled to the plurality of high-speed current drivers for receiving the plurality of laser drive signals.
4. (original) The apparatus of claim 1 wherein the laser current controller comprises:
  - an automatic power control (APC) input that accepts a digital APC signal; and
  - circuitry that adjusts the modulation signal and bias signal to the high-speed current drivers.
5. (currently amended) The apparatus of claim 1 further comprising:
  - ~~a high-speed current driver that drives a feedback laser; and~~
  - a feedback circuit that accepts a signal from the secondary feedback laser and generates a modulation feedback signal and a bias feedback signal and provides them to the laser current controller.

Serial No. 09/990,771

6. (original) The apparatus of claim 5 wherein the feedback circuit comprises:  
a peak to peak detector that generates the modulation feedback signal; and  
an average value detector that generates the bias feedback signal.
7. (original) The apparatus of claim 1 further comprising at least one high-speed current driver, which does not have a disable input.
8. (currently amended) The apparatus of claim 6 further comprising a photo detector that detects laser light produced by a said feedback laser driven by one of the ~~high-speed current drivers of the integrated driver and generates a feedback signal that is provided~~ provides it to the peak detector and the average value detector.
9. (canceled)
10. (currently amended) The apparatus of claim 8, wherein the modulating frequency of said feedback laser is approximately 100 MHZ.
11. (currently amended) The apparatus of claim 10 claim 9 wherein the frequency response of the photodetector is less than a maximum frequency of the data lasers and equal to or greater than the modulating frequency.
12. (original) The apparatus of claim 8 wherein the peak detector comprises:  
an input that accepts an output of the photo detector; a capacitance that accepts the output of the photodetector from the peak detector input and holds the output of the peak detector; and  
means for producing a slow discharge of the capacitance.
13. (original) The apparatus of claim 12 wherein the means for producing a slow discharge of the capacitance comprises:  
a transistor, having a base collector and emitter, wherein the base of the transistor provides a discharge path for the capacitance; and

Serial No. 09/990,771

a constant current source coupled to the emitter circuit of the transistor.

14. (currently amended) The apparatus of claim 2 wherein the plurality of high-speed current drivers receive power from a first power supply at a first supply voltage, and the remainder of the integrated circuit receives its power from a second power supply at a second supply voltage which is lower than said first supply voltage, thereby reducing the overall power consumed.

15. (currently amended) The apparatus of claim 10 further comprising a modulator that modulates the control feedback laser with a signal having a lower frequency than a maximum frequency of any of the data lasers.

16. (original) The apparatus of claim 15 wherein the maximum frequency response of the photo detector is lower than a maximum frequency of any of the data lasers.

17. (currently amended) An apparatus for driving a primary array of lasers, the apparatus comprising:

a laser current controller for providing a modulation signal and a bias signal;  
a plurality of high-speed current drivers coupled to said laser current controller that accept the modulation signal and the bias signal and utilize said modulation signal and said bias signal to produce a plurality of laser drive signals to drive said primary array of lasers; and

a feedback circuit that detects laser light produced by a secondary feedback laser driven by one of the high-speed current drivers a signal of substantially lower frequency than said high-speed frequency of the primary array of lasers to produce a modulation feedback signal and a bias feedback signal for provision to the laser current controller.

18. (original) An apparatus as in claim 17 wherein the laser current controller and the plurality of high-speed current drivers are integrated on an integrated circuit.

Serial No. 09/990,771

19. (currently amended) The apparatus of claim 18 ~~further comprising a said primary laser array~~ is integrated on the integrated circuit.

20. (currently amended) The apparatus of claim 17 wherein the feedback circuit further comprises a photo detector having lower frequency response than a maximum frequency of any of the ~~data primary array of lasers~~.

21. (canceled)

22. (currently amended) An apparatus as in 17 wherein the feedback circuit comprises:

a photodetector that accepts the laser light ~~from said secondary feedback laser~~ and produces a proportional voltage;

a peak detector that accepts an output of the photo detector;

a capacitance that holds the output of the peak detector; and

means for producing a slow discharge of the capacitance.

23. (original) An apparatus as in claim 22 wherein the means for producing a slow discharge of the capacitance comprises:

a transistor, wherein the base of the transistor provides a discharge path for the capacitance; and

a constant current source within the emitter circuit of the transistor.

24. (currently amended) The apparatus of claim 18 wherein the plurality of high-speed current drivers receive power from a first power supply ~~at a first supply voltage~~, and the remainder of the integrated circuit receives its power from a second power supply ~~at a second supply voltage which is lower than said first supply voltage~~, thereby reducing the overall power consumed.

Serial No. 09/990,771

25. (currently amended) An apparatus for driving a primary array of lasers, the apparatus comprising:

a laser current controller for providing a modulation signal and a bias signal;

a plurality of high-speed current drivers coupled to said laser current controller that accept the modulation signal and the bias signal and utilize said modulation signal and said bias signal to produce a plurality of laser drive signals;

a disable input that disconnects power from a high-speed current driver when the high-speed current driver is not in use;

a feedback laser that is driven from one of the plurality of high-speed current drivers; and

a feedback circuit, including a photodetector that accepts light from the feedback laser and produces a modulation feedback signal and a bias feedback signal, said photodetector having a cutoff frequency lower than the maximum frequency of the high-speed current drivers.

26. (original) The apparatus as in claim 25 further comprising a signal generator that modulates the feedback laser with a signal having a lower frequency than the maximum frequency of the high-speed current drivers.

27. (original) An apparatus as in claim 25 wherein the feedback circuit further comprises:

a peak detector that accepts an output of the photo detector;

a capacitance that holds the output of the peak detector; and

means for producing a slow discharge of the capacitance.

28. (original) An apparatus as in claim 27 wherein the means for producing a slow discharge of the capacitance comprises:

a transistor having a collector, emitter and base, wherein the base of the transistor provides a discharge path for the capacitance; and

a constant current source within the emitter circuit of the transistor.

Serial No. 09/990,771

29. (original) The apparatus of claim 28 wherein the high-speed current driver and the laser current controller are integrated on the same integrated circuit.

30. (original) The apparatus of claim 29 wherein the plurality of high-speed current drivers receive power from a first power supply, and the remainder of the integrated circuit receives its power from a second power supply thereby reducing the overall power consumed.

31-66. (Canceled)